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United States Department of Agriculture
Rural Development

Rural Business-Cooperative Service • Rural Housing Service • Rural Utilities Service
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Office of the Secretary
Federal Communications Commission
1919 M Street, NW
Room 222
Washington, DC 20554

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To whom it may concern:

The Rural Utilities Service (RUS) hereby reports *ex parte* representations to members of the Federal Communications Commission (Commission) staff on September 17, 1997, at Commission offices at 2100 M Street. The meeting was open to the public and is one of a series of regular weekly meetings being held by Commission staff to analyze cost models as they relate to universal service support (CC Docket Nos. 96-45 and 97-160). The focus of the meeting was customer location and outside plant design.

A list of attendees for the meeting is enclosed. In addition to reporting the nature of RUS comments at the meeting, we have provided additional comment on these topics as suggested by Commission staff.

Meeting Comments:

Structure Sharing

John Donovan, a member of the Hatfield team, asserted that sharing of construction costs among electric, cable, and telephone seems reasonable, especially in a forward-looking plant design. He presented photographs of a cable plow designed for simultaneous burial of two cables to support the Hatfield Model's assumption of shared installation.

RUS has previously provided written comment on the unrealistically high sharing assumptions of the Hatfield Model and the RUS representatives reiterated this view by stating that rural sharing is almost non-existent. The RUS representatives suggested that high sharing assumptions imply that all utility construction is coordinated and that, in effect, the entire utility system is being analyzed on a forward-looking basis. The RUS representatives argued this was not a proper approach.

Additional Comments:

Structure Sharing

In support of their position, the Hatfield sponsors described sharing in new housing developments. The RUS believes that utility practices in new developments are not a proper analogy. The premise of a forward-looking system is that it is built to serve *existing* households, not new developments. Ninety-four percent of existing households already receive service and most of these households have existing electric and cable service. It is unrealistic to assume that other utilities will be simultaneously rebuilt on a forward-looking basis simply to make the telephone system design more efficient. Companies build when they need to and when they have adequate access to capital. The build times for various utilities rarely coincide.

Model Error in Rural Areas

Customer Location

The models now being developed to calculate the cost of rural service share a common fault - their performance is weak in rural areas and weakest in the most rural areas outside of towns. In addition to being expensive, rural areas are highly variable and present unique conditions not found in subdivisions and towns. It is not surprising that they are difficult to model. That said, poor rural performance is unacceptable in a model whose reason for being is to support universal service in rural areas.

Identifying customer location is a central problem. It is generally accepted among those who attended the meeting that no currently available data base adequately describes the location of rural customers. Census data seems promising but there are several difficulties with it. It is always between three and thirteen years out of date. Also, it does not yet provide resolution below the level of the census block and these blocks can be huge in rural areas. Proponents of the Hatfield Model are using a direct-mail data base but it, too, is weakest in rural areas. Even lists of existing subscribers, if available, would not give the locations of unserved households.

Outside Plant Design

Until such time as better data is available, the location of the most rural customers will have to be guesses based on assumptions. This is not acceptable. Everything we have seen so far indicates that the guesses will lead to gross errors in the calculation of rural costs. The RUS has previously commented on "as the crow flies" design which ignores the road corridors along which almost all rural plant is built. Ignoring roads may be reasonable in towns. In rural areas it will compound the errors caused by guessing the subscriber location.

Beyond this, the RUS is concerned that the focus on cost minimization of the plant design is driving the models in a way which will inherently understate the cost of rural service. At present, the models assume an instantaneous build of the entire telephone network. The only concession to reality is that the design is calculated from existing wire centers. This is supposed to replicate the design of an "efficient" provider, existing or new entrant.

The models design a hypothetical system of precisely optimized plant, plant that is exactly right to serve a defined set of customers; but no telephone system in the history of the world has been built instantly from perfect data. In the real world, plant is built over time. The complete rebuild of a small system takes years from design to completion. No competent designer facing the uncertainty of the future would precisely optimize plant based on data which would be years out of date at the time of completion.

Good designs and budgets include margins for error to account for the changes which occur over time and for the *inevitable* mistakes made by humans. It can be argued that spare capacity (fill factors) provide some room for error. This might be true in more densely populated areas. But spare capacity cannot provide a margin of error in census blocks where little or no plant is built because the data was out of date or the guesses were just plain wrong. Precisely optimized plant is unrealistically forward-looking for rural areas. It would require that an "efficient" provider have perfect knowledge, including knowledge of the future, and make no mistakes in execution.

Designers also focus on system flexibility. Lowest cost solutions, even on a long term basis, are not necessarily the choice of competent designers. In the plant design put forward by FCC staff, for example, copper based T1 subscriber carrier is applied below a breakpoint while fiber-based carrier is used above the breakpoint. This may appear an "efficient" use of resources, but most designers will accept a cost penalty to avoid built-in bottlenecks to system expansion. Copper does not migrate gracefully to fiber, it must be replaced.

Besides, no one is installing new copper T1 systems in rural America today except, in a few cases, on existing plant. Traditional T1 copper based subscriber-carrier is not a forward-looking technology. The Act of 1996 defines universal service as an *evolving* level of telecommunications. As far as it is practical, forward-looking plant should be capable of evolution without wholesale rebuilding. If not, the design will become a *de facto* standard which retards system evolution.


Another factor that leads the models to inherently understate cost is that they are designed as if the entire nation were served by one system. Facilities-based competition always requires more plant than the "efficient" plant of a monopoly system. Although the amount of inefficiency is open to debate, there is no dispute on this issue. None of the models consider market-share, i.e., the costs faced by two or more facilities-based competitors serving the same market.

Conclusion

Models which cannot provide accurate cost estimates for rural areas are not ready for the important task of determining universal service support. The emphasis on optimization of current models should be balanced by margins for uncertainty, error, and market share, because an "efficient" provider cannot be expected to be clairvoyant, omniscient, and omnipotent. Modeling error should not be compounded by unrealistic sharing assumptions. The outside plant design should be crafted on a realistic basis, using state-of-the-art technologies likely to be used by a new entrant actually building facilities.

RUS appreciates the opportunity to attend these weekly meetings.

Sincerely,


ORRIN E. CAMERON III
Director
Telecommunications Standards Division

Enclosure

cc: Charles Keller, FCC
Robert Loube, FCC
Richard N. Clarke, AT&T
Glenn Brown, US WEST
Rowland L. Curry, Texas PUC

Persons attending the 9/17 meeting:

In Person:

Natalie Wales, FCC
Rowland Curry, TX PUC
Jim Stegeman, Indetec
Jim Dunbar, Sprint
Glenn Brown, US West
Whit Jordan, BellSouth
Chuck Keller, FCC
Jackie McGirr-Cortti, Bell Atlantic
Bob Loube, FCC
Pamela Fusting, NTCA
Greg Ryan, Bell Atlantic
John Donovan, Telecom Visions, Inc.
Chris Frentrup, MCI
Mike Lieberman, AT&T
Rich Clarke, AT&T
Bill Sharkey, FCC
John Huslig, RUS
Peter Lau, Bell Atlantic
Gary Allan, RUS
Warren Hannah, Sprint
Brad Wimmer, FCC
Wade Harriman, FCC
Mark Seiler, RUS
Ira Geldziler, BellAtlantic
Ed Barber, Bell Atlantic
Scott Randolph, GTE
David Porter, WorldCom

BY PHONE:

Charlie Bolle, SD PUC
Ann Dean, MD PSC
Barry Payne, IN Office of Consumer Counsel
Brian Roberts, CA PUC
Mike Jackson, Tom Gehen, GTE
Chris Babb, NECA